

Amendments to the Claims:

Please replace all prior claims versions and listings with the following:

Listing of the Claims:

1. **(previously presented)** A ceramic filter for trapping and combusting diesel exhaust particulates comprising an end-plugged cordierite honeycomb structure, wherein:
 - a quantity $d_{50}/(d_{50}+d_{90})$ as related to pore size distribution less than 0.70;
 - a soot loaded permeability factor S_f , as defined by the equation $[d_{50}/(d_{50}+d_{90})]/[\% \text{porosity}/100]$, is less than 1.55;
 - a coefficient of thermal expansion (25-800°C) is no greater than $17 \times 10^{-7}/^{\circ}\text{C}$, and
 - median pore diameter, d_{50} , is less than 15 micrometers.
2. **(original)** A ceramic filter according to claim 1 wherein the soot loaded permeability factor S_f is between 0.83 and 1.40.
3. **(original)** A ceramic filter according to claim 2 wherein the soot loaded permeability factor S_f is between 0.83 and 1.35.
4. **(original)** A ceramic filter according to claim 1 wherein the quantity $d_{50}/(d_{50}+d_{90})$ is less than 0.65.
5. **(original)** A ceramic filter according to claim 2 wherein the quantity $d_{50}/(d_{50}+d_{90})$ is less than 0.60.
6. **(original)** A ceramic filter according to claim 1 wherein the coefficient of thermal expansion (25-800°C) is less than $10 \times 10^{-7}/^{\circ}\text{C}$.
7. **(original)** A ceramic filter according to claim 6 wherein the coefficient of thermal expansion (25-800°C) is less than $5 \times 10^{-7}/^{\circ}\text{C}$.

8. **(currently amended)** A ceramic filter according to claim 1 wherein a median pore diameter, d_{50} , is at least 4 micrometers and ~~up to 40 micrometers~~ less than 15 micrometers.
9. **(currently amended)** A ceramic filter according to claim 8 wherein the median pore diameter, d_{50} , is between 6 micrometers and ~~25 micrometers~~ 15 micrometers.
10. **(original)** A ceramic filter according to claim 9 wherein median pore diameter, d_{50} , is between 7 micrometers and 15 micrometers.
11. **(original)** A ceramic filter according to claim 1 wherein a quantity d_{90}/d_{50} as related to pore size distribution is greater than 0.40.
12. **(original)** A ceramic filter according to claim 11 wherein the quantity d_{90}/d_{50} as related to pore size distribution is greater than 0.55.
13. **(original)** A ceramic filter according to claim 12 wherein the quantity d_{90}/d_{50} as related to pore size distribution is greater than 0.60.
14. **(original)** A ceramic filter according to claim 1 wherein a quantity $(d_{50}-d_{90})/d_{50}$ as related to pore size distribution is less than 0.60.
15. **(original)** A ceramic filter according to claim 1 wherein the quantity $(d_{50}-d_{90})/d_{50}$ as related to pore size distribution is less than 0.50.
16. **(original)** A ceramic filter according to claim 1 wherein the quantity $(d_{50}-d_{90})/d_{50}$ as related to pore size distribution is less than 0.40.
17. **(original)** A ceramic filter according to claim 1 wherein a porosity is at least 40% by volume, and less than 60%.
18. **(original)** A ceramic filter according to claim 17 wherein the porosity is 50% by volume.
19. **(original)** A ceramic filter according to claim 18 wherein the porosity is 55% by volume.
20. **(original)** A ceramic filter according to claim 1 wherein a filter volumetric heat capacity is at least $0.67 \text{ J cm}^{-3} \text{ K}^{-1}$ at 500°C .

21. **(original)** A ceramic filter according to claim 1 wherein the filter volumetric heat capacity is at least $0.76 \text{ J cm}^{-3} \text{ K}^{-1}$ at 500°C .
22. **(original)** A ceramic filter according to claim 1 wherein the filter volumetric heat capacity is at least $0.85 \text{ J cm}^{-3} \text{ K}^{-1}$ at 500°C .
23. **(original)** A method for fabricating a wall-flow filter and comprising:
- (a) forming a batch of raw materials comprising magnesium oxide, alumina and silica raw materials in combination with extrusion forming aids;
 - (b) plasticizing and shaping the batch, wherein the shaping is done through an extrusion die to form a green honeycomb body having an inlet end, an outlet end, and a multiplicity of cells extending from the inlet end to the outlet end;
 - (c) drying and firing the green honeycomb body to form a structure which is predominately of a phase approximating the stoichiometry of $\text{Mg}_2\text{Al}_4\text{Si}_5\text{O}_{18}$ and exhibits a pore size distribution as determined by mercury porosimetry in which the quantity $d_{50}/(d_{50}+d_{90})$ is less than 0.70; a soot loaded permeability factor S_f , as defined by the equation $[d_{50}/(d_{50}+d_{90})]/[\% \text{porosity}/100]$, of less than 1.55; and, a coefficient of thermal expansion ($25\text{-}800^{\circ}\text{C}$) of no greater than $17 \times 10^{-7}/^{\circ}\text{C}$;
 - (d) plugging a first portion of cells at the inlet end, and a second portion of cells at the outlet end such that each cell is plugged at only one end.
24. **(original)** The method of claim 23 wherein the batch further includes spinel having a stoichiometry of MgAl_2O_4 .
25. **(original)** The method of claim 23 wherein the batch further includes a pore former.
26. **(original)** The method of claim 25 wherein the pore former is selected from the group consisting of graphite, cellulose, starch, polyacrylates and polyethylenes, and combinations thereof.

27. **(original)** The method of claim 26 wherein the pore former has a median particle diameter of 3-140 micrometers.
28. **(original)** The method of claim 27 wherein the pore former has a median particle diameter of 5-80 micrometers.
29. **(original)** The method of claim 28 wherein the pore former has a median particle diameter of 10-50 micrometers.
30. **(original)** The method of claim 23 wherein magnesium oxide is supplied from the group consisting of magnesium oxide, magnesium hydroxide, magnesium carbonate, magnesium nitrate and mixtures thereof.
31. **(original)** The method of claim 23 wherein the alumina is supplied from the group consisting of aluminum oxide, aluminum hydroxide, hydrated alumina, alpha alumina, gamma-alumina, rho-alumina, boehmite, aluminum nitrate, aluminum carbonate and mixtures thereof.
32. **(original)** The method of claim 23 wherein the silica is supplied from the group consisting quartz, cristobalite, fused silica, sol-gel silica, zeolite, colloidal silica, alpha quartz, and mixtures thereof.
33. **(original)** The method of claim 23 wherein the extrusion forming aids comprise 2-10% by weight methylcellulose as binder, and 0.5-1.0% by weight sodium stearate as lubricant.
34. **(original)** The method of claim 23 wherein the firing is done at a rate of 15-100°C/hr to a maximum temperature of 1405-1430°C, with a hold of 6-25 hrs.